

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Ichiro IMAIZUMI

Serial No.: New

Filing Date: October 1, 2001

For: CORRELATION CIRCUIT FOR SPREAD SPECTRUM

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS

Please amend claims 5 through 20 as follows:

5. (amended) The correlation circuit for spread spectrum communication according to claim 1 wherein the input signal register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal register.

6. (amended) The correlation circuit for spread spectrum communication according to claim 2 wherein the input signal

05966100-100400

register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal register.

7. (amended) The correlation circuit for spread spectrum communication according to claim 3 wherein the input signal register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal register.

8. (amended) The correlation circuit for spread spectrum communication according to claim 4 wherein the input signal register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal

register.

9. (amended) The correlation circuit for spread spectrum communication according to claim 1 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner,

a plurality of outputs in the course of stepwise addition in said adder section can be selectively outputted as partial correlation outputs, and

the controller selects the partial correlation output in said adder section in accordance with a spread ratio of said spread code.

10. (amended) The correlation circuit for spread spectrum communication according to claim 2 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner,

a plurality of outputs in the course of stepwise addition in said adder section can be selectively outputted as partial correlation outputs, and

the controller selects the partial correlation output in said adder section in accordance with a spread ratio of said spread code.

11. (amended) The correlation circuit for spread spectrum communication according to claim 3 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner,

a plurality of outputs in the course of stepwise addition in

said adder section can be selectively outputted as partial correlation outputs, and

the controller selects the partial correlation output in said adder section in accordance with a spread ratio of said spread code.

12. (amended) The correlation circuit for spread spectrum communication according to claim 4 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner,

a plurality of outputs in the course of stepwise addition in said adder section can be selectively outputted as partial correlation outputs, and

the controller selects the partial correlation output in said adder section in accordance with a spread ratio of said spread code.

13. (amended) The correlation circuit for spread spectrum communication according to claim 1 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

14. (amended) The correlation circuit for spread spectrum communication according to claim 2 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

15. (amended) The correlation circuit for spread spectrum communication according to claim 3 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

16. (amended) The correlation circuit for spread spectrum communication according to claim 4 wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

17. (amended) The correlation circuit for spread spectrum communication according to claim 1 wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation

outputs when there are a plurality of selected partial correlation outputs.

18. (amended) The correlation circuit for spread spectrum communication according to claim 2 wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

19. (amended) The correlation circuit for spread spectrum communication according to claim 3 wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

20. (amended) The correlation circuit for spread spectrum communication according to claim 4 wherein the sum of products calculator comprises the multiplier section constituted of a

plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

Table 1. Demographic characteristics of the study population	
Age (years)	50.0 ± 10.0
Gender	
Male	50.0%
Female	50.0%
Education (years)	12.0 ± 2.0
Marital status	
Married	80.0%
Single	20.0%
Occupation	
Professional	30.0%
Managerial	20.0%
Technical	10.0%
Service	20.0%
Unemployed	20.0%
Income (USD/month)	1,000.0 ± 500.0
Health status	
Good	70.0%
Fair	20.0%
Poor	10.0%

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

By.

400 Seventh Street, N.W.
Washington, D.C. 20004-2201
(202) 638-6666

8

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

5. (amended) The correlation circuit for spread spectrum communication according to claim 1 [any one of claims 1] wherein the input signal register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal register.

6. (amended) The correlation circuit for spread spectrum communication according to claim 2 [any one of claims 2] wherein the input signal register has a variable writing speed of data, and successively writes and outputs the input signal from the memory at the specified speed,

the spread code register is prepared for the necessary number of users, and cyclically shifts and outputs the generated spread code, and

the controller controls a cyclic shift in said spread code register in accordance with a writing position in the input signal register.

7. (amended) The correlation circuit for spread spectrum communication according to claim 3 [any one of claims 3] wherein the input signal register has a variable writing speed of data, and

section for successively adding a multiplication result in a stepwise manner,

a plurality of outputs in the course of stepwise addition in said adder section can be selectively outputted as partial correlation outputs, and

the controller selects the partial correlation output in said adder section in accordance with a spread ratio of said spread code.

13. (amended) The correlation circuit for spread spectrum communication according to claim 1 [any one of claims 1] wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

14. (amended) The correlation circuit for spread spectrum communication according to claim 2 [any one of claims 2] wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

15. (amended) The correlation circuit for spread spectrum communication according to claim 3 [any one of claims 3] wherein the sum of products calculator comprises a multiplier section for

multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

16. (amended) The correlation circuit for spread spectrum communication according to claim 4 [any one of claims 4] wherein the sum of products calculator comprises a multiplier section for multiplying the input signal and the spread code, and an adder section for successively adding a multiplication result in a stepwise manner, and

the controller resets an adder for performing stepwise addition in the adder section in accordance with the spread ratio of the spread code.

17. (amended) The correlation circuit for spread spectrum communication according to claim 1 [any one of claim 1] wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

18. (amended) The correlation circuit for spread spectrum communication according to claim 2 [any one of claim 2] wherein the

sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

19. (amended) The correlation circuit for spread spectrum communication according to claim 3 [any one of claim 3] wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

20. (amended) The correlation circuit for spread spectrum communication according to claim 4 [any one of claim 4] wherein the sum of products calculator comprises the multiplier section constituted of a plurality of multipliers for multiplying the input signal and the spread code, and a plurality of block adder sections for outputting the partial correlation outputs added by a unit of the specified number of multipliers in said multiplier section, and

the controller selects the partial correlation output from

said block adder section in accordance with the spread ratio of said spread code, and adds said selected partial correlation outputs when there are a plurality of selected partial correlation outputs.

09965100-100101
TOTAL "00199650